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MAR - 5 2014

Section 006: 510(k) Summary

510(k) Summary

Introduction: According to the requirements of 21 CFR 807.92, the following information provides sufficient details to understand the basis for determination of substantial equivalence.

The assigned 510(k) Number: K140258

- 1. Submitter** Siemens Healthcare Diagnostics Inc.
Mailing Address: 511 Benedict Avenue
Tarrytown, NY 10591

Contact Person: Asha Gartland
Technical Regulatory Affairs Specialist

Phone Number: (914)-524-3257
Fax Number: (914)-524-2101
E-mail Address: asha.gartland@siemens.com
Date Prepared: January 31, 2014
- 2. Device Name** **IMMULITE® 2000 DHEA-SO4 Calibration Verification Material**
Proprietary Name: Quality Control materials for IMMULITE® 2000 DHEA-SO4 assay
Measurand: Calibration Verification Material (CVM) for IMMULITE® 2000
Type of Test: DHEA-SO4 assay

Regulation Section: 21 CFR 862.1660, Quality Control Material
Classification: Class I Reserved
Products Code: JJX – Single (Specified) Analyte Controls (Assayed and Unassayed)
Panel: Clinical Chemistry (75)
- 3. Predicate Device Name** IMMULITE® 2000 Insulin Calibration Verification Material (CVM)
Predicate 510(k) No: K133128
- 4. Device Description:** The Calibration Verification Material (CVM) contains one set of four vials each 2.0mL after reconstitution. CVM1 contains human serum with preservatives. CVM2, CVM 3 and CVM4 contain various levels of lyophilized DHEA-SO4 in human serum with preservatives.
- 5. Intended Use:** See Indications for Use Statement below:
Indication for Use: The IMMULITE® DHEA-SO4 Calibration Verification Material (CVM) is for in vitro diagnostic use in the verification of calibration of the IMMULITE DHEA-SO4 assay on the IMMULITE 2000 systems.

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**Special Conditions for
Use Statement(s):
Special Instrument
Requirements:**

For prescription use only

IMMULITE® 2000 Systems

**6. Technological Characteristics
and Substantial Equivalence
Comparison with Predicate:**

A comparison of the device features, intended use, and other information demonstrates that the IMMULITE® 2000 DHEA-SO4 Calibration Verification Material (CVM) is substantially equivalent to the predicate device as summarized in **Table 1**.

Table 1: Substantial Equivalence Comparison

SIMILARITIES		
	Candidate Device IMMULITE 2000 DHEA-SO4 CVM	Predicate Device IMMULITE 2000 Insulin CVM
Intended Use	The IMMULITE® DHEA-SO4 Calibration Verification Material (CVM) is for in vitro diagnostic use in the verification of calibration of the IMMULITE DHEA-SO4 assay on the IMMULITE 2000 systems.	The IMMULITE® Insulin Calibration Verification Material (CVM) is for in vitro diagnostic use in the verification of calibration of the IMMULITE Insulin assay on the IMMULITE 2000 systems.
Form	Lyophilized	Same
Levels	4	Same
Storage	≤20°C	Same
Stability	Stable unopened until the expiration date	Same
Use	Single Use Only	Same

DIFFERENCES		
	Candidate Device IMMULITE 2000 DHEA-SO4 CVM	Predicate Device IMMULITE 2000 Insulin CVM
Analyte	DHEA-SO4	Insulin
Matrix	Human Serum with preservatives	Equine serum with preservatives

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7. Non-Clinical Performance Testing

Performance testing has been carried out to demonstrate that this device meets the performance specifications for its intended use. The following tests were performed on the candidate device.

7.1 Stability Summary:

The stability study was conducted to validate the real-time shelf life and In-Use (Open Component or open vial) claim for the IMMULITE 2000 DHEA-SO4 Calibration Verification Material (CVM) to ensure that it maintains optimal product performance on IMMULITE 2000 platforms throughout the established shelf life of the CVM before and after opening. The IMMULITE® 2000 DHEA-SO4 Calibration Verification Materials are stable up to 7 years when stored at -20°C prior to opening and stable for 8 hours at ambient or room temperature (15-25°C) after reconstitution.

7.1.1 Stability Protocol Summary:

The CVM study protocols are run as part of the calibrator stability testing. The stability CVMs and reference CVMs are run in duplicate (as a minimum) at the time points shown in **Table 2** and the dose value determined from the reference calibrator curve.

Table 2: Stability Time Points

CVM Level	Time-Points (Days)			
LDSCVM1	1	1642	1825	2555
LDSCVM2	1	1642	1825	2555
LDSCVM3	1	1642	1825	2555
LDSCVM4	1	1642	1825	2555

For Open Component testing, the results are determined from a 2-point adjustment. Test CVMs were tested at 2-hourly intervals for up to 9 hours at ambient or room temperature (15-25°C) conditions.

7.1.2 Stability Acceptance Criteria Summary:

The Acceptance Criteria for the DHEA-SO4 Calibration Verification Material (CVM) are in 2 parts. Part 1 consists of guideline acceptance criteria which require dose value of stability calibrators/CVM to fall between $\pm 15\%$ of assigned dose for CVM level 2, $\pm 10\%$ of assigned dose for level 3 and $\pm 15\%$ of assigned dose for level 4. Part 2 review limits criteria which require dose value of the controls to be within 2SD of the control target value when generated from the stability calibrator curve. If the result is not within acceptable dose range of $\pm 15\%$ for CVM level 2, $\pm 10\%$ for level 3 and $\pm 15\%$ for level 4 then additional data review is conducted using part 2 criteria.

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The acceptance criterion is summarized in **Table 3**.

Table 3 Acceptance criteria for stability of IMMULITE 2000 DHEA-SO₄ CVM

CVM Level	Assigned Dose (µg/dL))	*Guideline Criteria % difference to assigned dose	Acceptable dose range (µg/dL)	**Review Limits
LDSCVM1	0.00	Not Applicable	Not Applicable	Controls are within 2SD of target on each curve
LDSCVM2	46.9	±15%	39.9 – 53.9	
LDSCVM3	486	±10%	437.4 – 534.6	
LDSCVM4	1052	±15%	894.2 – 1209.8	

7.2 Traceability:

The IMMULITE DHEA-SO₄ CVMs are traceable to an internal material which has been gravimetrically prepared. The CVMs are manufactured using qualified materials and measurement procedures.

7.3 Value Assignment:

DHEA-SO₄ CVMs are 4 level materials which are a subset of 7 level DHEA-SO₄ calibrators. Calibrators are not commercialized but are used internally during manufacture and release testing of DHEA-SO₄ reagents and two point adjustors. The IMMULITE calibrators and therefore CVMs are value assigned using assigned reference calibrators. The assigned reference calibrators are prepared using DHEA-SO₄ antigen stock and are traceable to an internal material which has been gravimetrically prepared. Six levels of commercially available controls and 30 normal serum samples were used to validate calibrator/CVM value assignments.

The CVMs are manufactured using qualified materials and measurement procedures. The DHEA-SO₄ CVMs were tested on 27 replicates in total comprised of 9 runs, 3 replicates per run, on 9 systems and 4 different reagent kit lots. The CVMs dose values are generated using curve generated by assigned reference calibrators. The CVM values are calculated based on the recovered values for each run on each instrument independently. CVM values are then averaged across all systems. Quality control is performed by calculating the recovery of patient samples and controls using the assigned CVM values. The controls must fall within their target ranges.

7.4 Expected Values/Reference Range:

Each CVM level was tested on 27 replicates in total comprised of 9 runs, 3 replicates per run, on 9 systems and 4 different reagent kit lots. The Guideline Range (95% confidence interval) for each CVM level was established based on the Target Mean and ± 2 Standard Deviation (SD). The expected values are provided in the IMMULITE® 2000 CVM Calibration verification Material lot-specific package insert.

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The expected assay range is 1 - 1000 µg/dL. The target values in **Table 4** can be considered as guidelines.

Table 4: Target Values

Analyte target levels	CVM Level	Target Mean (µg/dL)	Standard Deviation (SD)	Guideline ±2SD Range (µg/dL)	
	CVM1	0.00	-	0.00	≤15.00
	CVM2	46.9	6.1	34.7	59.1
	CVM3	486	43.5	399	573
	CVM4	1052	84	884	1220
Assay Range	1 - 1000 µg/dL				

Each laboratory should establish their limits for acceptability based on methodology, clinical significance and medical decision levels of the test analyte. The representative, total precision tabulated in the respective assay instructions for use may be considered as one factor when establishing local, acceptable ranges. The values provided above may be considered as guidelines. Value assignment is lot specific.

Standard/Guidance Documents Referenced:

- CEN 13640 Stability Testing of In Vitro Diagnostic Reagents
- Guidance for Industry – Abbreviated 510(k) Submissions for In Vitro Diagnostic Calibrators
- Guidance for Industry and FDA Staff – Assayed and Unassayed Quality Control Material

Proposed Labeling:

The labeling is sufficient and it satisfies the requirements of 21 CFR Part 809.10

8. Conclusion:

The IMMULITE® 2000 DHEA-SO4 Calibration Verification Material is substantially equivalent to other products in commercial distribution intended for similar use. Most notably, it is substantially equivalent to the FDA cleared IMMULITE® 2000 Insulin Calibration Verification Material. The substantial equivalence of the device is supported by the non-clinical testing and was found to be comparable and supports the claims of substantial equivalence, product safety and effectiveness. Based on the testing completed and the comparisons with predicate device, the IMMULITE® 2000 DHEA-SO4 Calibration Verification Material does not raise any new questions on safety and effectiveness and the results support a determination of substantial equivalence.

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510(k) Summary

Introduction: According to the requirements of 21 CFR 807.92, the following information provides sufficient details to understand the basis for determination of substantial equivalence.

The assigned 510(k) Number: _____

1. Submitter

Mailing Address: Siemens Healthcare Diagnostics Inc.
511 Benedict Avenue
Tarrytown, NY 10591

Contact Person: Asha Gartland
Technical Regulatory Affairs Specialist
Phone Number: (914)-524-3257
Fax Number: (914)-524-2101
E-mail Address: asha.gartland@siemens.com
Date Prepared: January 31st, 2014

2. Device Name

Proprietary Name: IMMULITE® 2000 Third Generation TSH Calibration
Measurand: Verification Material
Type of Test: Quality Control materials for IMMULITE® 2000 Third Generation TSH assay
Calibration Verification Material (CVM) for IMMULITE® 2000
Regulation Section: Third Generation TSH assay
Classification: 21 CFR 862.1660, Quality Control Material
Products Code: Class I Reserved
JJX – Single (Specified) Analyte Controls (Assayed and Unassayed)
Panel: Clinical Chemistry (75)

3. Predicate Device Name
Predicate 510(k) No:

IMMULITE® 2000 Insulin Calibration Verification Material (CVM)
K133128

4. Device Description:

The Calibration Verification Material (CVM) contains one set of four vials, 3 mL each after reconstitution. CVM 1 contains an equine serum/buffer matrix with preservatives. CVM2, CVM3 and CVM4 various levels of lyophilized TSH in an equine serum/buffer matrix with preservatives.

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5. Intended Use:

Indication for Use:

See Indications for Use Statement below

The IMMULITE® Third Generation TSH Calibration Verification Material (CVM) is for in vitro diagnostic use in the verification of calibration of the IMMULITE Third Generation TSH assay on the IMMULITE 2000 systems

Special Conditions for

Use Statement(s):

Special Instrument

Requirements:

For prescription use only

IMMULITE® 2000 Systems

6. Technological

Characteristics and

Substantial Equivalence

Comparison with Predicate:

A comparison of the device features, intended use, and other information demonstrates that the IMMULITE® 2000 Third Generation TSH Calibration Verification Material (CVM) is substantially equivalent to the predicate device as summarized in **Table 1.**

Table 1: Substantial Equivalence Comparison

SIMILARITIES		
	Candidate Device IMMULITE 2000 Third Generation TSH CVM	Predicate Device IMMULITE 2000 Insulin CVM
Intended Use	The IMMULITE® Third Generation TSH Calibration Verification Material (CVM) is for in vitro diagnostic use in the verification of calibration of the IMMULITE Third Generation TSH assay on the IMMULITE 2000 systems	The IMMULITE® Insulin Calibration Verification Material (CVM) is for in vitro diagnostic use in the verification of calibration of the IMMULITE Insulin assay on the IMMULITE 2000 systems
Form	Lyophilized	Same
Matrix	Equine serum/buffer with preservatives	Same
Storage	≤20°C	Same
Stability	Stable unopened until the expiration date	Same
Levels	4	Same
Use	Single Use Only	Same

DIFFERENCES		
	Candidate Device IMMULITE 2000 Third Generation TSH CVM	Predicate Device IMMULITE 2000 Insulin CVM
Analyte	TSH	Insulin

7. Non-Clinical Performance Testing

Performance testing has been carried out to demonstrate that this device meets the performance specifications for its intended use. The following tests were performed on the candidate device.

7.1 Stability Summary:

The stability study was conducted to validate the real-time shelf life and In-Use (Open Component or open vial) claim for the IMMULITE 2000 Third Generation TSH Calibration Verification Material (CVM) to ensure that it maintains optimal product performance on IMMULITE 2000 platforms throughout the established shelf life of the CVM before and after opening. The IMMULITE 2000 Third Generation TSH Calibration Verification Materials are stable up to 1.5 years when stored frozen at -20°C prior to opening and stable for 8 hours at ambient or room temperature (15-25°C) after reconstitution.

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7.1.1 Stability Protocol Summary:

The CVM study protocols are run as part of the calibrator stability testing. The stability CVMs and reference CVMs are run in duplicate (as a minimum) at the time points shown in **Table 2** and the dose value determined from the reference calibrator curve.

Table 2: Stability Time Points

CVM Level	Time-Points (Days)			
LTSCVM1	1	182	365	548
LTSCVM2	1	182	365	548
LTSCVM3	1	182	365	548
LTSCVM4	1	182	365	548

For Open Component testing, the results are determined from a 2-point adjustment. Test CVMs were tested at 2-hourly intervals for up to 9 hours at ambient or room temperature (15-25°C) conditions.

7.1.2 Stability Acceptance Criteria Summary:

The Acceptance Criteria for the Third Generation TSH Calibration Verification Material (CVM) are in 2 parts. Part 1 consists of guideline acceptance criteria which require dose value of stability calibrators/CVM to fall between $\pm 10\%$ of assigned dose for CVM level 2, $\pm 12\%$ of assigned dose for level 3 and $\pm 16\%$ of assigned dose for level 4. Part 2 review limits criteria which require dose value of the controls to be within 2SD of the control target value when generated from the stability calibrator curve. If the result is not within acceptable dose range of $\pm 10\%$ for CVM level 2, $\pm 12\%$ for level 3 and $\pm 16\%$ for level 4 then additional data review is conducted using part 2 criteria. The acceptance criterion is summarized in Table 3.

Table 3: Acceptance criteria for stability of IMMULITE 2000 Third Generation TSH CVM

CVM level	Assigned Dose ($\mu\text{IU/mL}$)	Guideline Criteria % difference to assigned dose	Acceptable dose range ($\mu\text{IU/mL}$)	Review Limits
LTSCVM1	0	Not Applicable	Not Applicable	Controls are within 2SD of target on each curve
LTSCVM2	0.58	$\pm 10\%$	0.52 – 0.64	
LTSCVM3	4.33	$\pm 12\%$	3.81 – 4.85	
LTSCVM4	75	$\pm 16\%$	63.00 – 87.00	

7.2 Traceability:

The IMMULITE Third Generation TSH CVMs are traceable to WHO 2nd IRP 80/558.

The CVMs are manufactured using qualified materials and measurement procedures.

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7.3 Value Assignment:

Third Generation TSH CVMs are 4 level materials which are a subset of 15 level Third Generation TSH calibrators. Calibrators are not commercialized but are used internally during manufacture and release testing of Third Generation TSH reagents and two point adjusters.

The IMMULITE calibrators and therefore CVMs are value assigned using assigned reference calibrators. The assigned reference calibrators are prepared using human TSH antigen spiked in Equine Serum matrix with preservatives. Seven levels of commercially available controls and 30 samples (10 spiked patient samples, 15 spiked normal samples and 5 normal samples) were used to validate calibrator/CVM value assignments.

The CVMs are manufactured using qualified materials and measurement procedures. The calibrators/CVMs were tested on 15 replicates in total comprised of 5 runs, 3 replicates per run, on 5 systems and 5 different reagent kit lots. The CVMs dose values are generated using curve generated by assigned reference calibrators. The CVM values are calculated based on the recovered values for each run on each instrument independently. CVM values are then averaged across all systems. Quality control is performed by calculating the recovery of patient samples, spiked patient samples and controls using the assigned CVM values. The controls must fall within their target ranges.

7.4 Expected Values/Reference Range:

Each CVM level was tested on 15 replicates in total comprised of 5 runs, 3 replicates per run, on 5 systems and 5 different reagent kit lots. The Guideline Range (95% confidence interval) for each CVM level was established based on the Target Mean and ± 2 Standard Deviation (SD). The expected values are provided in the IMMULITE® 2000 CVM Calibration Verification Material lot-specific package insert. The expected assay range is 0.004 - 75 μ IU/mL. The target values in **Table 4** can be considered as guidelines.

Table 4: Target Values

Analyte target levels	CVM Level	Target (μ IU/mL)	Standard Deviation (SD)	Guideline ± 2 SD Range (μ IU/mL)	
	CVM1	0.000	-	0.000	0.004
	CVM2	0.580	0.032	0.516	0.644
	CVM3	4.33	0.26	3.81	4.85
	CVM4	75.0	6.0	63.0	87.0
Assay Range		0.004 - 75 μ IU/mL			

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Each laboratory should establish their limits for acceptability based on methodology, clinical significance and medical decision levels of the test analyte. The representative, total precision tabulated in the respective assay instructions for use may be considered as one factor when establishing local, acceptable ranges. The values provided above may be considered as guidelines. Value assignment is lot specific.

Standard/Guidance Documents Referenced:

- CEN 13640 Stability Testing of In Vitro Diagnostic Reagents
- Guidance for Industry – Abbreviated 510(k) Submissions for In Vitro Diagnostic Calibrators
- Guidance for Industry and FDA Staff – Assayed and Unassayed Quality Control Material

Proposed Labeling:

The labeling is sufficient and it satisfies the requirements of 21 CFR Part 809.10

8. Conclusion:

The IMMULITE® 2000 Third Generation TSH Calibration Verification Material is substantially equivalent to other products in commercial distribution intended for similar use. Most notably, it is substantially equivalent to the FDA cleared IMMULITE® 2000 Insulin Calibration Verification Material. The substantial equivalence of the device is supported by the non-clinical testing and was found to be comparable and supports the claims of substantial equivalence, product safety and effectiveness. Based on the testing completed and the comparisons with predicate device, the IMMULITE® 2000 Third Generation TSH Calibration Verification Material does not raise any new questions on safety and effectiveness and the results support a determination of substantial equivalence.

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510(k) Summary

Introduction: According to the requirements of 21 CFR 807.92, the following information provides sufficient details to understand the basis for determination of substantial equivalence.

The assigned 510(k) Number: _____

1. Submitter

Mailing Address: Siemens Healthcare Diagnostics Inc.
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Contact Person: Asha Gartland
Technical Regulatory Affairs Specialist
Phone Number: (914)-524-3257
Fax Number: (914)-524-2101
E-mail Address: asha.gartland@siemens.com
Date Prepared: January 31, 2014

2. Device Name

Proprietary Name: **IMMULITE® 2000 Intact PTH Calibration Verification Material**
Measurand: Quality Control materials for IMMULITE® 2000 Intact PTH assay
Type of Test: Calibration Verification Material (CVM) for IMMULITE® 2000 Intact PTH assay

Regulation Section: 21 CFR 862.1660, Quality Control Material
Classification: Class I Reserved
Products Code: JJX – Single (Specified) Analyte Controls (Assayed and Unassayed)
Panel: Clinical Chemistry (75)

3. Predicate Device Name

IMMULITE® 2000 Insulin Calibration Verification Material (CVM) K133128

Predicate 510(k) No:

4. Device Description:

The Calibration Verification Material (CVM) contains one set of four vials, with 4 mL for CVM1 and 2 mL each for CVM2, CVM3 and CVM4 after reconstitution. CVM1 contains a buffered bovine protein matrix with preservatives. CVM2, CVM3 and CVM4 contain various levels of lyophilized synthetic human intact PTH in buffered bovine protein matrix with preservatives.

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5. Intended Use:

Indication for Use:

See Indications for Use Statement below

The IMMULITE® Intact PTH Calibration Verification Material (CVM) is for in vitro diagnostic use in the verification of calibration of the IMMULITE Intact PTH assay on the IMMULITE 2000 systems

**Special Conditions for
Use Statement(s):**

**Special Instrument
Requirements:**

For prescription use only

IMMULITE® 2000 Systems

**6. Technological
Characteristics and
Substantial Equivalence
Comparison with Predicate:**

A comparison of the device features, intended use, and other information demonstrates that the IMMULITE® 2000 Intact PTH Calibration Verification Material (CVM) is substantially equivalent to the predicate device as summarized in **Table 1**.

Table 1: Substantial Equivalence Comparison

SIMILARITIES		
	Candidate Device IMMULITE 2000 Intact PTH CVM	Predicate Device IMMULITE 2000 Insulin CVM
Intended Use	The IMMULITE® Intact PTH Calibration Verification Material (CVM) is for in vitro diagnostic use in the verification of calibration of the IMMULITE Intact PTH assay on the IMMULITE 2000 systems.	The IMMULITE® Insulin Calibration Verification Material (CVM) is for in vitro diagnostic use in the verification of calibration of the IMMULITE Insulin assay on the IMMULITE 2000 systems.
Form	Lyophilized	Same
Levels	4	Same
Stability	Stable unopened until the expiration date	Same
Use	Single Use Only	Same
Storage	≤20°C	Same

DIFFERENCES		
	Candidate Device IMMULITE 2000 Intact PTH CVM	Predicate Device IMMULITE 2000 Insulin CVM
Analyte	Intact PTH	Insulin
Matrix	Buffered Bovine/protein with preservatives	Equine serum with preservatives

7. Non-Clinical Performance Testing

Performance testing has been carried out to demonstrate that this device meets the performance specifications for its intended use. The following tests were performed on the candidate device.

7.1 Stability Summary:

The real time stability study was conducted to validate shelf life claim and In-Use (Open Component or open vial) claim for the IMMULITE 2000 Intact PTH Calibration Verification Material (CVM) to ensure that it maintains optimal product performance on IMMULITE 2000 platforms throughout the established shelf life of the CVM before and after opening. The IMMULITE® 2000 Intact PTH Calibration Verification Materials (CVMs) are stable up to 2 years when stored at -20°C prior to opening, and stable for 8 hours at ambient or room temperature (15-25°C) after reconstitution.

7.1.1 Stability Protocol Summary:

The CVM study protocols are run as part of the calibrator stability testing. The stability CVMs and reference CVMs are run in duplicate (as a minimum) at the time points shown in **Table 2** and the dose value determined from the reference calibrator curve.

Table 2: Stability Time Points

CVM Level	Time-Points (Days)			
LPDCVM1	1	182	365	730
LPDCVM2	1	182	365	730
LPDCVM3	1	182	365	730
LPDCVM4	1	182	365	730

For Open Component testing, the results are determined from a 2-point adjustment. Test CVMs were tested at 2-hourly intervals for up to 9 hours at ambient or room temperature (15-25°C) conditions.

7.1.2 Stability Acceptance Criteria Summary:

The Acceptance Criteria for the IMMULITE Intact PTH Calibration Verification Material (CVM) are in 2 parts. Part 1 consists of the guideline acceptance criteria which require dose value of stability calibrator/CVM to fall between $\pm 12\%$ of assigned dose for CVM level 2, $\pm 8\%$ of assigned dose for CVM level 3 and $\pm 12\%$ of assigned dose for CVM level 4. Part 2 review limits criteria which require dose value of the controls to be within 2SD of the control target value when generated from the stability calibrator curve. If the result is not within acceptable dose range of $\pm 12\%$ for level 2, $\pm 8\%$ for level 3 and $\pm 12\%$ for level 4, then additional data review is conducted using part 2 criteria.

The acceptance criterion is summarized in **Table 3**.

Table 3: Acceptance criteria for stability of IMMULITE 2000 Intact PTH CVM

CVM level	Assigned Dose (pg/mL)	*Guideline Criteria % difference to assigned dose	Acceptable dose range (pg/mL)	Review Limits
LPPCVM1	0.00	Not Applicable	Not Applicable	Controls are within 2SD of target on each curve
LPPCVM2	15.2	$\pm 12\%$	13.4 – 17.0	
LPPCVM3	154	$\pm 8\%$	141.7 – 166.3	
LPPCVM4	3784	$\pm 12\%$	3329.9 – 4238.1	

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7.2 Traceability:

The IMMULITE Intact PTH CVMs are traceable to internal material which has been gravimetrically prepared. The CVMs are manufactured using qualified materials and measurement procedures.

7.3 Value Assignment:

Intact PTH CVMs are 4 level materials which are a subset of 9 level Intact PTH calibrators. Calibrators are not commercialized but are used internally during manufacture and release testing of Intact PTH reagents and two point adjusters.

The IMMULITE calibrators and therefore CVMs are value assigned using assigned reference calibrators. The assigned reference calibrators are prepared synthetic Human Intact PTH (1-84) spiked in the buffered bovine protein matrix. Two levels of commercially available controls and 88 samples (32 EDTA plasma, 32 serum, 12 EDTA dialysis samples and serum dialysis samples) are used to validate calibrator/CVM value assignments.

The CVMs are manufactured using qualified materials and measurement procedures. The CVMs were tested on 27 replicates in total comprised of 9 runs, 7 systems and 3 different reagent kit lots. The CVMs dose values are generated using curve generated by assigned reference calibrators. The CVM values are calculated based on the recovered values for each run on each instrument independently. CVM values are then averaged across all systems. Quality control is performed by calculating the recovery of patient samples, spiked patient samples and controls using the assigned CVM values. The controls must fall within their target ranges.

7.4 Expected Values/Reference Range:

Each CVM level was tested on 27 replicates in total comprised of 9 runs, 7 systems and 3 different reagent kit lots. The Guideline Range (95% confidence interval) for each CVM level was established based on the Target Mean and ± 2 Standard Deviation (SD). The expected values are provided in the IMMULITE® 2000 CVM Calibration Verification Material lot-specific package insert. The expected assay range is 1-2500 pg/mL. The target values in **Table 4** can be considered as guidelines.

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Table 4: Target Values

Analyte target levels	CVM Level	Target Mean (pg/mL)	Standard Deviation (SD)	Guideline $\pm 2SD$ Range (pg/mL)	
	CVM1	0.00	-	0.00	3.00
	CVM2	20.4	1.35	17.7	23.1
	CVM3	167	15.0	137	197
	CVM4	5176	-	-	-
	(50% CVM1 + 50% CVM4)	2588	155.5	2277	2899
Assay Range	1-2500 pg/mL				

CVM4 requires dilution to ensure the target value is within +10% of the top of the reportable range of the assay

Each laboratory should establish their limits for acceptability based on methodology, clinical significance and medical decision levels of the test analyte. The representative, total precision tabulated in the respective assay instructions for use may be considered as one factor when establishing local, acceptable ranges. The values provided above may be considered as guidelines. Value assignment is lot specific.

Standard/Guidance Documents Referenced:

- CEN 13640 Stability Testing of In Vitro Diagnostic Reagents
- Guidance for Industry – Abbreviated 510(k) Submissions for In Vitro Diagnostic Calibrators
- Guidance for Industry and FDA Staff – Assayed and Unassayed Quality Control Material

Proposed Labeling:

The labeling is sufficient and it satisfies the requirements of 21 CFR Part 809.10

8. Conclusion:

The IMMULITE® 2000 Intact PTH Calibration Verification Material is substantially equivalent to other products in commercial distribution intended for similar use. Most notably, it is substantially equivalent to the FDA cleared IMMULITE® 2000 Insulin Calibration Verification Material. The substantial equivalence of the device is supported by the non-clinical testing and was found to be comparable and supports the claims of substantial equivalence, product safety and effectiveness. Based on the testing completed and the comparisons with predicate device, the IMMULITE® 2000 Intact PTH Calibration Verification Material does not raise any new questions on safety and effectiveness and the results support a determination of substantial equivalence.



Food and Drug Administration
10903 New Hampshire Avenue
Document Control Center – WO66-G609
Silver Spring, MD 20993-0002
March 5, 2014

SIEMENS HEALTHCARE DIAGNOSTICS, INC.
ASHA GARTLAND
TECHNICAL REGULATORY AFFAIRS SPECIALIST
511 BENEDICT AVENUE
TARRYTOWN NY 10591

Re: K140258

Trade/Device Name: IMMULITE® 2000 DHEA-SO4 Calibration Verification Material,
IMMULITE® 2000 Third Generation TSH Calibration Verification Material,
IMMULITE® 2000 Intact PTH Calibration Verification Material
Regulation Number: 21 CFR 862.1660
Regulation Name: Quality Control Material (assayed and unassayed)
Regulatory Class: I, Reserved
Product Code: JJX
Dated: January 31, 2014
Received: February 3, 2014

Dear Asha Gartland:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Parts 801 and 809); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the

electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulations (21 CFR Parts 801 and 809), please contact the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638 2041 or (301) 796-7100 or at its Internet address <http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm>. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to <http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm> for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address <http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm>.

Sincerely yours,

 Courtney H. Lias -S

Courtney H. Lias, Ph.D.
Director
Division of Chemistry and Toxicology Devices
Office of In Vitro Diagnostics
and Radiological Health
Center for Devices and Radiological Health

Enclosure

Indications for Use

510(k) Number (if known)
k140258

Device Name
MMULITE 2000 DHEA-SO4 Calibration Verification Material,
MMULITE 2000 Third Generation TSH Calibration Verification Material,
MMULITE 2000 Intact PTH Calibration Verification Material,

Indications for Use (Describe)

The IMMULITE 2000 DHEA-SO4 Calibration Verification Material (CVM) is intended for in vitro diagnostic use in the verification of calibration of the IMMULITE DHEA-SO4 assay on the IMMULITE 2000 systems.

The IMMULITE 2000 Third Generation TSH Calibration Verification Material (CVM) is intended for in vitro diagnostic use in the verification of calibration of the IMMULITE Third Generation TSH assay on the IMMULITE 2000 systems.

The IMMULITE 2000 Intact PTH Calibration Verification Material (CVM) is intended for in vitro diagnostic use in the verification of calibration of the IMMULITE Intact PTH assay on the IMMULITE 2000 systems.

Type of Use (Select one or both, as applicable)

☒ Prescription Use (Part 21 CFR 801 Subpart D)

☐ Over-The-Counter Use (21 CFR 801 Subpart C)

PLEASE DO NOT WRITE BELOW THIS LINE – CONTINUE ON A SEPARATE PAGE IF NEEDED.

FOR FDA USE ONLY

Concurrence of Center for Devices and Radiological Health (CDRH) (Signature)

Yung W. Chan -S